

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A system for detecting predefined events occurring in operating power generation equipment located at a plant site and for diagnosing and responding to the predefined events, the system comprising:

an on-site monitor located at the plant site for analyzing operating data collected from the power generation equipment and for determining if any of the predefined events occurred during operation of the power generation equipment;

a plurality of sensors for collecting the operating data from the power generation equipment and for transferring the operating data to the on-site monitor;

a remote management system for storing and retrieving historical data pertaining to operation of fleet power generation equipment and to the occurrence of the predefined events in the fleet power generation equipment and for storing and analyzing the operating data collected from the power generation equipment and the event determination; and

a plurality of coaching tools for ~~using the operating data, event determinations and historical data~~ assisting members of the remote management system and/or operators located at the plant site to decide how to respond to the occurrence of any predefined events in the power generation equipment, the coaching tools using the operating data, event determinations and historical operating data from fleet power generation equipment,

the coaching tools being displayed ~~at~~by the on-site monitor when a time-critical predefined event occurs in the power generation equipment ~~to assist so that the operators located at the on-site monitor of plant site can decide how to respond to a~~ the time-critical predefined event occurring in the power generation equipment in an expedited timeframe,

the coaching tools being displayed ~~at~~by the remote management system ~~to allow so that the members of the remote management system can decide how to respond to a~~ non-time-critical predefined event in a timeframe that is not expedited.

2. (Original) The system of claim 1 wherein the plurality of sensors are selected from the group consisting of temperature, pressure and flow sensors.

3. (Original) The system of claim 1 further comprising a communications device for transferring to the remote management system the operating data and event determinations from the on-site monitor.

4. (Previously Presented) The system of claim 1 further comprising an analysis platform for analyzing whether any predefined events have occurred, the analysis platform including a first program resident in the on-site monitor and a second program resident in the remote management system.

5. (Previously Presented) The system of claim 4, wherein the on-site monitor further comprises a first data storage device which contains the operating data collected by the plurality of sensors.

6. (Original) The system of claim 5, wherein the remote management system further comprises a second data storage device which contains the historical data

pertaining to the operation of the fleet power generation equipment, and the event determinations and the operating data collected by the plurality of sensors.

7. (Original) The system of claim 4 wherein the first program is a continuous diagnostic engine analysis software and the second program is a central calculating engine analysis software.

8. (Previously Presented) The system of claim 7 wherein the continuous diagnostic engine analysis software determines a state of the power generation equipment by comparing sensor operating data with equipment operating data provided by manufacturers of the power generation equipment to determine whether any of sensor data exceeds the manufacturer's operating limits for the power generation equipment and generates an alarm when it detects the occurrence of any predefined events.

9. (Original) The system of claim 7 wherein the continuous diagnostic engine analysis software analyzes the operating data collected by the plurality of sensors using standard algorithms and complex information and generates an alarm when it detects the occurrence of any predefined events.

10. (Original) The system of claim 4 wherein the analysis platform uses procedural and behavioral algorithms to provide information about the operation of the power generation equipment.

11. (Previously Presented) The system of claim 1 wherein the coaching tools use the historical data to either determine a likely cause of the event and an action plan for responding to the event or predict consequences of the event and determine a preventive action plan in response to the event.

12. (Previously Presented) The system of claim 1 wherein the on-site monitor and remote management systems include sensor metadata that is information about how and when operating data for the power generation equipment is collected by the plurality of sensors and about particular units used to measure the collected operating data.

13. (Previously Presented) The system of claim 12 wherein the sensor metadata includes timestamps relating to the times that operating data is collected and recorded and identification of the particular sensors collecting the data.

14. (Original) The system of claim 12 wherein the sensor metadata includes sensor alias mappings for identifying the sensors corresponding to a customer site where the power generation equipment is located.

15. (Previously Presented) The system of claim 12 wherein the sensor metadata includes range values to validate the collected sensor operating data to insure that it is within the power generation equipment's manufacturer's range for such data.

16. (Original) The system of claim 1 wherein the on-site monitor and remote management system are each a computer.

17. (Previously Presented) The system of claim 1 wherein the coaching tools include turbine sequencing, turbine alarms and engineering operational algorithms, and operational data.

18. (Currently Amended) A system for detecting predefined events occurring in operating power generation equipment at a customer location and for diagnosing and responding to the predefined events, the system comprising:

a plurality of sensors at the customer location for monitoring the power generation equipment and collecting operating data from the power generation equipment;

a monitor at the customer location for analyzing the operating data collected from the power generation equipment and for determining if any of the predefined events occurred during operation of the power generation equipment;

a management system at a location different from the customer location for storing and retrieving historical data pertaining to operation of fleet power generation equipment and to the occurrence of the predefined events in the fleet power generation equipment;

a communications device for transferring to the management system the operating data collected by the plurality of sensors and the determinations by the monitor of whether any of the predefined events occurred;

an analysis platform for analyzing whether any predefined events have occurred, the analysis platform including a first program resident in the monitor and a second program resident in the management system; and

a plurality of coaching tools for ~~using the collected operating data, determinations by the on-site monitor of whether any of the predefined events occurred, and historical data assisting members of the remote management system and/or operators located at the plant site~~ to determine a likely cause of any predefined events that have occurred and an action plan for responding to the events or to predict consequences of the events and determine preventive action plans in response to the events, the coaching tools using the collected operating data, determinations by the customer location monitor of whether any

of the predefined events occurred, and historical operating data from fleet power generation equipment,

the coaching tools being displayed ~~at~~by the ~~on-site customer location monitor~~ when a time-critical predefined event occurs in the power generation equipment ~~to assist so that the operators located at the on-site customer location monitor of can decide how to respond to a~~the time-critical predefined event ~~occurring in the power generation equipment~~ in an expedited timeframe,

the ~~of~~ coaching tools being displayed ~~at~~by the remote management system ~~to allow so that the members of the remote management system can decide how to respond to a non-time-critical predefined event in a timeframe that is not expedited.~~

19. (Original) The system of claim 18 wherein the plurality of sensors are selected from the group consisting of temperature, pressure and flow.

20. (Original) The system of claim 18 further comprising system controls for controlling the operation of the power generation equipment and for transferring the operating data to the monitor.

21. (Original) The system of claim 18, wherein the monitor further comprises a first data storage device which contains the power generation equipment operating data collected by the plurality of sensors.

22. (Original) The system of claim 18, wherein the management system further comprises a second data storage device which contains the historical data pertaining to

the operation of the fleet power generation equipment and to the occurrence of the predefined events and the operating data collected by the plurality of sensors.

23. (Original) The system of claim 18 wherein the first program is a continuous diagnostic engine analysis software and the second program is a central calculating engine analysis software.

24. (Previously Presented) The system of claim 23 wherein the continuous diagnostic engine analysis software determines a state of the power generation equipment by comparing sensor operating data with equipment operating data provided by manufacturers of the power generation equipment to determine whether any of sensor data exceeds the manufacturer's operating limits for the power generation equipment and generates an alarm when it detects the occurrence of any predefined events.

25. (Original) The system of claim 23 wherein the continuous diagnostic engine analysis software analyzes the operating data collected by the plurality of sensors using standard algorithms and complex information and generates an alarm when it detects the occurrence of any predefined events.

26. (Previously Presented) The system of claim 18 wherein the analysis platform uses procedural and behavioral algorithms to provide information about the data collected and transferred to the management system.

27. (Currently Amended) The system of claim 18 wherein the plurality of coaching tools use the historical data to either determine ~~the~~ a likely cause of the event and an action plan for responding to the event or predict ~~the~~ consequences of the event and determine a preventive action plan in response to the event.

28. (Previously Presented) The system of claim 18 wherein the monitor and the management system each includes sensor metadata that is information about how and when operating data for the power generation equipment is collected by the plurality of sensors and about particular units used to measure the collected operating data.

29. (Currently Amended) The system of claim 28 wherein the sensor metadata includes timestamps relating to times that operating data is collected and recorded and identification of the particular sensors collecting the data.

30. (Original) The system of claim 28 wherein the sensor metadata includes sensor alias mappings for identifying the sensors corresponding to a customer site where the power generation equipment is located.

31. (Previously Presented) The system of claim 28 wherein the sensor metadata includes a range values to validate the collected sensor operating data to insure that it is within the power generation equipment's manufacturer's range for such data.

32. (Original) The system of claim 18 wherein the monitor is a desk top computer and the management system is a server computer.

33. (Original) The system of claim 18 wherein the plurality of coaching tools is selected from the group consisting of turbine sequencing, turbine alarms and engineering operational algorithms, and operational data.

34. (Currently Amended) A system for detecting predefined events occurring in operating power generation equipment and for diagnosing and responding to the predefined events, the system comprising:

first analyzing means, located where the power generation equipment is located, for analyzing operating data collected from the power generation equipment and for determining if any of the predefined events occurred during operation of the power generation equipment;

means for collecting the operating data from the power generation equipment and for transferring the operating data to the first analyzing means;

second analyzing means, located at a location different from the location of the power generation equipment, for analyzing operating data collected from the power generation equipment and for storing and retrieving historical data pertaining to operation of fleet power generation equipment and to the occurrence of the predefined events in the fleet power generation equipment; and

a plurality of coaching tools for ~~using the operating data assisting~~ members of the second analyzing means and/or operators located where the power generation equipment is located to either determine a likely cause of a predefined event in the power generation equipment and an action plan for responding to the event or predict consequences of the event and determine a preventive action plan in response to the event, the coaching tools using the operating data, event determinations and historical operating data from fleet power generation equipment,

the coaching tools being displayed ~~at~~ by the first analyzing means when a time-critical predefined event occurs in the power generation equipment ~~to assist so that the operators located at the first analyzing means can decide how~~ to respond to a time-critical predefined event ~~in the power generation equipment~~ in an expedited timeframe,

the coaching tools being displayed ~~at~~by the second analyzing means ~~to allow so~~
that the members of the second analyzing means can decide how to respond to a non-
time-critical predefined event in a timeframe that is not expedited.

35. (Original) The system of claim 34 further comprising an analysis platform including a first program resident in the first analyzing means for analyzing the operating data, and a second program resident in the second analyzing means for analyzing the operating data.

36. (Original) The system of claim 34 further comprising first means for storing the operating data collected by the collection and transfer means, the first storing means being included in the first analyzing means.

37. (Original) The system of claim 36 further comprising second means for storing the operating data collected and transferred by the collection and transfer means, the second storing means being included in the second analyzing means.

38. (Original) The system of claim 34 wherein the first and second analyzing means use procedural and behavioral algorithms to analyze the collected operating data and decide whether a predetermined event has occurred.

39. (Canceled)

40. (Previously Presented) A method of detecting predefined events occurring in operating power generation equipment and of diagnosing and responding to the predefined events, the method comprising the steps of:

collecting operating data for the power generation equipment and storing the operating data at a location where the power generation equipment is located;

analyzing at the location where the power generation equipment is located the operating data collected from the power generation equipment to determine if any of the predefined events occurred during operation of the power generation equipment;

storing at a location different from where the power generation equipment is located historical data pertaining to operation of fleet power generation equipment;

storing at the location different from where the power generation equipment is located the collected operating data and any determinations as to the occurrence of any of the predefined events in the power generation equipment; and

~~using~~ providing a plurality of coaching tools which use the operating data, predefined events and historical data so that members at the different location and/or operators at the power generation equipment location can ~~to~~ determine if any of the predefined events occurred, and if so, ~~to~~ either determine a likely cause of the event and an action plan for responding to the event or predict consequences of the event and determine a preventive action plan in response to the event, the determining step comprising:

~~analyzing the operating data~~ displaying the plurality of coaching tools at the location at which the power generation equipment is located when a time-critical predefined event occurs in the power generation equipment so that the operators at the power generation equipment location can determine the potential causes of the predefined events and the consequences of such events or identify action recommendations ~~must be~~

~~identified~~ in an expedited timeframe to prevent further consequences from the occurrence of the time-critical predefined events, and

~~analyzing the operating data~~ displaying the plurality of coaching tools at the different location ~~when~~ so that the members at the different location can determine the potential causes of ~~the~~ non-time-critical predefined events and the consequences of such events or identify action recommendations ~~need not be identified in an~~ a non-expedited timeframe to prevent further consequences from the occurrence of the predefined events.

41. (Original) The method of claim 40 wherein the step of analyzing the operating data comprises using procedural and behavioral algorithms to provide information about the operating data.

42 – 44 (Canceled)